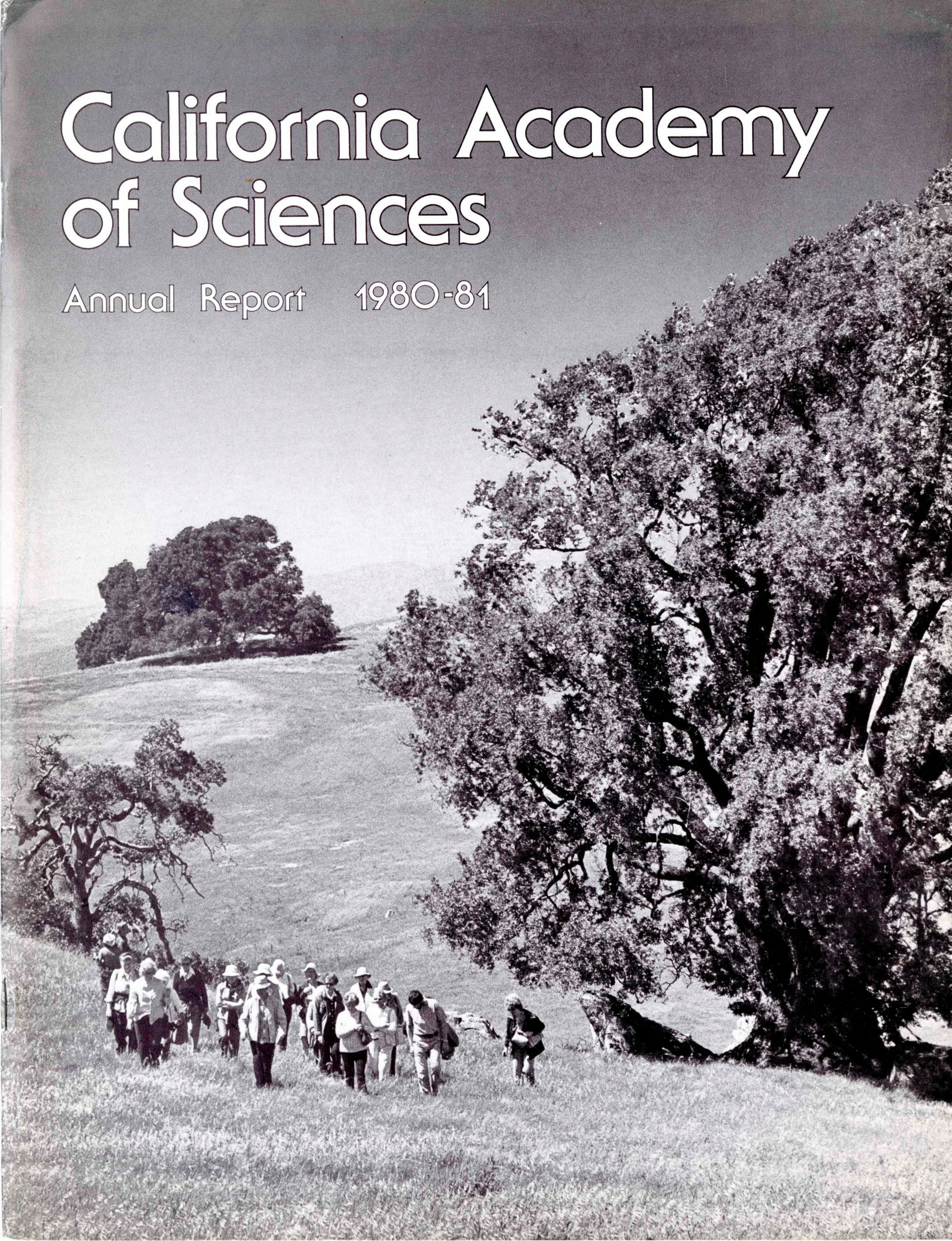
California Academy of Sciences

Annual Report 1980-81



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On the cover:
Pepperwood Ranch Natural Preserve is a 3117-acre area in Sonoma County donated to the Academy by Kenneth K. Bechtel, through the Belvedere Scientific Fund. It will be preserved in its natural state and utilized for research and educational activities in the natural and environmental sciences.

A GIFT TO THE ACADEMY

> Through the instrument of money we have been given a marvelous power to continue our influence, our values, our convictions and dedications long after we are gone. The act of deciding what to do with one's money after one's need of it is finished is one of the momentous events of life.
>
> Truman B. Douglas

Deferred gifts—bequests and trusts—secure the Academy's future as one of the country's leading natural science museums.

Bequests historically have furnished important support to the Academy.

Living trusts benefit the Academy during donors' lifetimes, while providing life income for them and, if desired, for loved ones. Then the gift supports the Academy's general purposes or a specified purpose.

Such gifts, as to the Academy's Pooled Income Fund, provide donors an immediate income tax deduction, investment diversification, and fund management. Increased asset yield, an inflation hedge, and reduced estate taxes may also result.

Gifts of long-term appreciated securities are particularly advantageous, as they avoid capital gains taxes.

Annual gifts from individuals, corporations, and foundations are also needed to support ongoing operations and to ensure the Academy's continued excellence.

If you wish further information on these or on other forms of giving, please telephone, write or visit:

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Your inquiry will be held in strict confidence.

A MESSAGE FROM THE CHAIRMAN

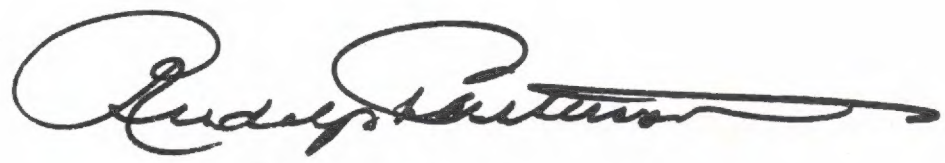
This introduction to the report of the Academy's year which ended June 30, 1981 must start with a statement of appreciation to Paul L. Davies, Jr. for his service as Chairman from October 14, 1973 until October 15, 1980. Those seven years were ones of accomplishment under his leadership. Mr. Davies continues his active support and interest as Vice Chairman.

Six new trustees joined the board during the year—Mr. John R. Grey, Dr. Bruce Bolt, Mrs. Roy Borgonovo, Mrs. Robert Dunne, Dr. James Kelley, and Mr. John W. Larson. Mr. John A. Sutro, who had served on the board since 1966, was elected Honorary Trustee on October 15, 1980.

It is our sad task to report the death of Mrs. Ernest Lilienthal on May 8, 1981, one of our most dedicated trustees over a period of seventeen years. Her active interest contributed so much to the outstanding progress we have seen in the areas of membership, development, educational activities and docent programs in recent years.

The long search for a successor to George Lindsay, Director of the Academy since 1963, was completed with the appointment of Dr. Frank Hamilton Talbot effective March 1, 1982. George has been good enough to extend his planned retirement until that date. We are grateful for his constructive and energetic leadership which has brought to the Academy a new dimension of usefulness to the community and stature throughout the world as a cultural institution.

George Lindsay's report follows this message. The year was one of growth and some reorganization preparatory to the change of administration. The support of the trustees, members, staff, business community, City and County of San Francisco, National Endowments for the Arts and Humanities, and the National Science Foundation are together responsible for the good health of the California Academy of Sciences in this, its 128th year.



Rudolph A. Peterson
Chairman, Board of Trustees

REPORT OF THE DIRECTOR

Fiscal year 1980-81 was difficult for many museums and other cultural institutions and activities. It is gratifying, therefore, to report that for the California Academy of Sciences it was a good year, one of increased programs, ambitious exhibits, and strengthened staff. The future can be faced with confidence. The essential interest and support of its members, friends, and the business community are responsible for its well-being.

This is my final annual report and perhaps an appropriate time to review a little more than the year just concluded. I came to the Academy in 1963. Dr. Robert C. Miller, my predecessor, had expanded the century-old institution with the construction of the Alexander F. Morrison Planetarium, Lovell White Hall, Dean Witter African Hall, Alice Eastwood Hall of Botany, John Ward Maillard, Jr. Library, May Treat Morrison Auditorium, and the $1.5 million renovation of Steinhart Aquarium. Dr. Miller was the Academy's director for twenty-five years, and still serves as Director Emeritus.

The principal strength of the Academy is its Board of Trustees. It has been my good fortune to be directed by Board Chairmen Decker G. McAllister, Alan J. Galloway, E. Morris Cox, Paul L. Davies, Jr., and, most recently, Rudolph A. Peterson. All provided unusual abilities which they gave and give selflessly to the Academy, and to them and their fellow trustees I am personally grateful.

Trustee I. W. Hellman, since deceased, and the S. H. Cowell Foundation were responsible for the addition of Cowell Hall in 1969. Cowell Hall gave architectural unity to the Academy's complex of buildings, enclosing the Whale Fountain Court in a quadrangle that had been planned for half a century. It provided an impressive entrance and reception area, restaurant facilities off the main exhibition level, and a floor for administrative and business offices which previously had been inconveniently located in various buildings.

Chairman E. Morris Cox undertook the fundraising for the most ambitious recent plant expansion, with substantial support from Mrs. Paul L. Wattis; the Wattis Hall of Man, Wattis Gallery, Patricia Price Peterson Gallery, and Atholl McBean Gallery were dedicated on June 30, 1976. This building, a gift from many persons, families, and foundations, provided 21,000 square feet of additional exhibition galleries and 30,000 square feet for new Botany and Entomology Departments on upper floors.

Dr. Earl S. Herald, who directed Steinhart Aquarium for twenty-five years, dreamed of a giant donut-shaped aqua-

Left, George E. Lindsay, Director of the California Academy of Sciences, on the steps of Cowell Hall, the administration and exhibit building constructed during his tenure. Above, the Academy complex, in Golden Gate Park. African Hall is on the left; North American Hall at the right. The Academy is one of the major cultural attractions of San Francisco, and hosted 1,481,551 visitors during the year.

rium tank for pelagic fishes, with visitors enjoying a diver's view from the center. Trustee Wilson Meyer and his family sponsored the innovative unit, which Mr. Meyer called a "fish roundabout" after London's traffic circles. Unfortunately Dr. Herald died in a diving accident at Cabo San Lucas in January 1973, and Mr. Meyer died later in the year, so neither saw the wonderful facility which was dedicated on May 5, 1977.

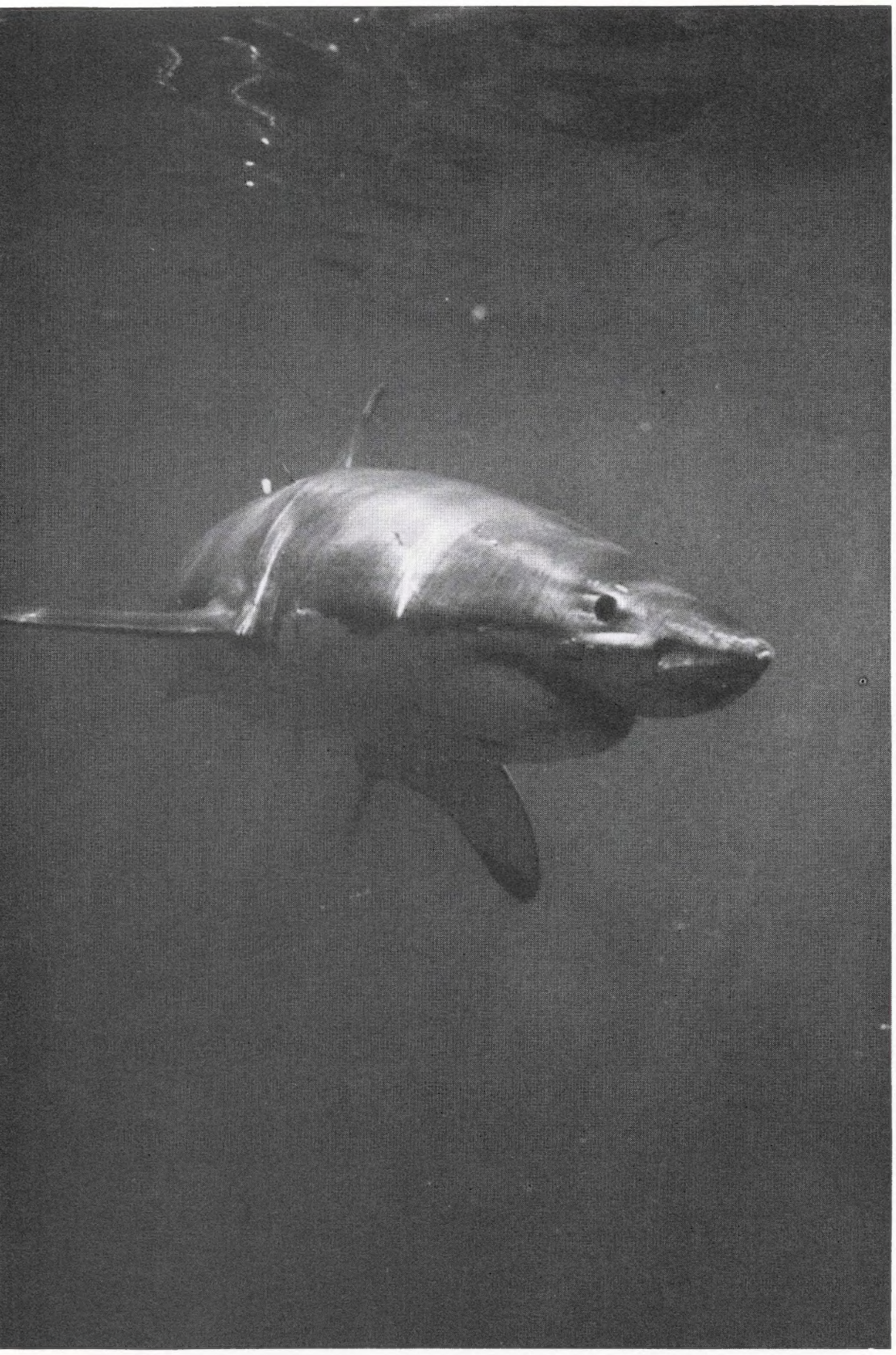
The growth of the Academy has been fortuitous but also within a master plan. The Wattis Hall of Man added Anthropology to the subjects exhibited and led to the reactivation of the Anthropology Department, an essential unit of a natural history museum.

Additional gallery space made possible the series of exceptional temporary exhibits featured during the past four years. "Peru's Golden Treasures," "Ice Age Art," and "Gold of El Dorado" came from the American Museum of Natural History. "Creativity, the Human Resource" sponsored by Chevron U.S.A. started its three-year tour with its Academy opening in May, 1979, as did "Shakespeare: The Globe and the World," from the Folger Shakespeare Library the following October. The Field Museum provided "Feather Arts," and the Museum of the American Indian "The Ancestors."

The reactivated Anthropology Department was largely responsible for the Academy's first major traveling exhibit, "Hopi Kachina: Spirit of Life" which, following its summer of 1980 exhibition at the Academy, went on to Pittsburgh, New York, Chicago, Washington, D.C., and St. Paul. "Exploring the Deep Frontier," developed with the cooperation of the National Geographic Society by Drs. John McCosker and Sylvia Earle, Designer Kevin O'Farrell, and the Academy staff, is booked for display by other institutions for the next three years.

The Academy is a research center and the expansion of its physical plant made possible the enlargement of all of its research departments. The educational division also benefited, and a new Junior Academy, Docent Center, Discovery Room, and Adult Education and Travel office were developed.

The following report is of fiscal year 1980-81, the 128th year of the Academy. It was possible because of the efforts of many generations of people who have given their support. I am grateful to them, but particularly to the trustees, members, corporations, foundations, and Academy colleagues with whom I have enjoyed a pleasant association these past eighteen years.



Left, Sandy the Great White Shark was a guest at the aquarium for several days. Top, Mayor Feinstein, while visiting Sandy, chatted with Aquarist Ed Miller and Aquarium Director John McCosker. Above, opening ceremony of FAFCO solar collectors, designed to heat the aquarium water. Right, Kevin O'Farrell, Exhibit Designer; John McCosker, Director of Public Programs; and Pam Wing, Public Information Officer, in the "Exploring the Deep Frontier" exhibit. Far right, Academy biologist Sylvia Earle and friend.

PUBLIC PROGRAMS

John E. McCosker, Director of Public Programs. While the mission of the Academy is both basic research and education in the natural and environmental sciences, the educational functions and public programs bring recognition to the institution and, in turn, support the scientific research staff and facilities. The exhibitions in the aquarium and museum, membership activities, planetarium programs, children's and adult classes, lectures, and travel activities are all part of Dr. McCosker's general responsibility.

STEINHART AQUARIUM

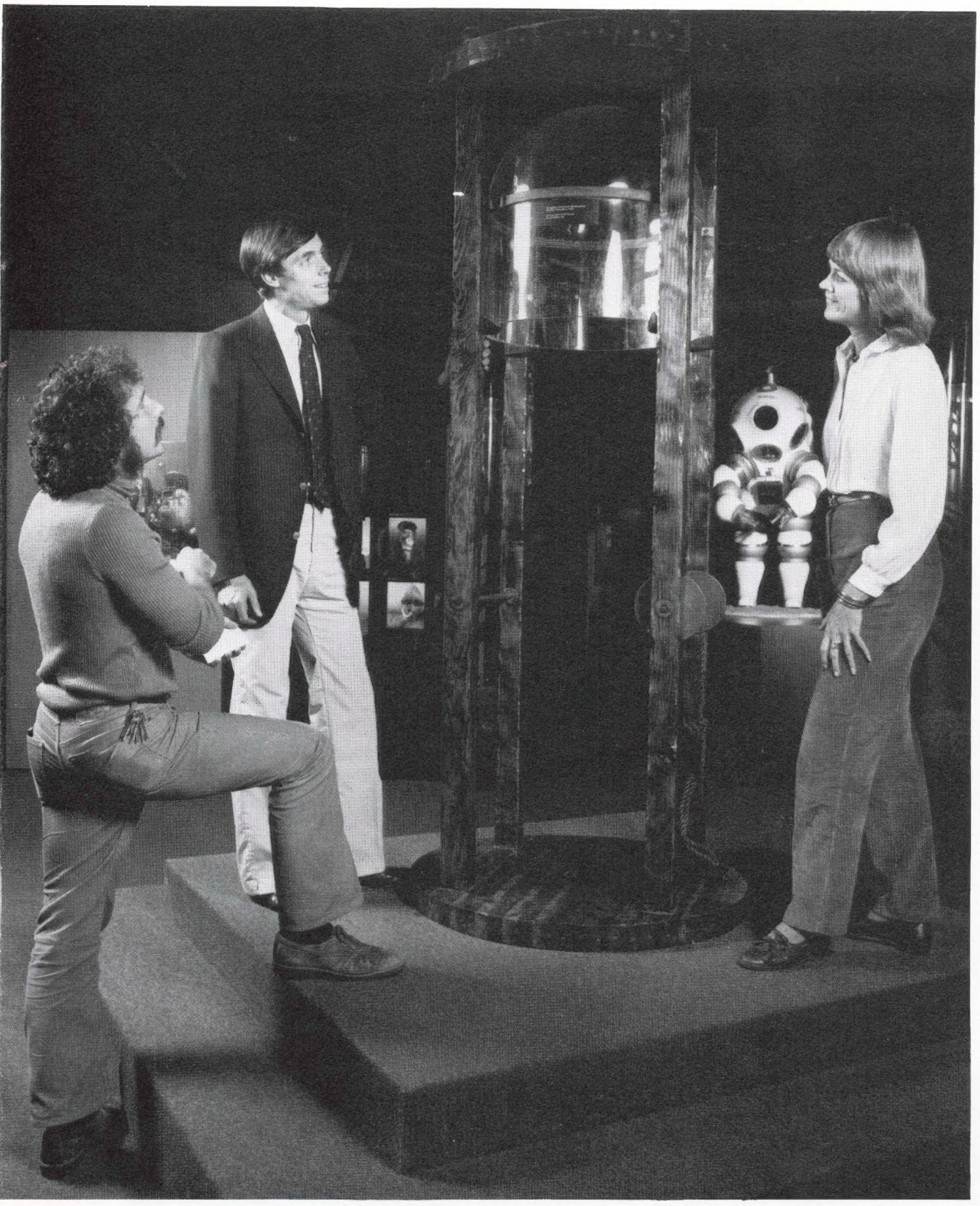
John E. McCosker, Director. The Aquarium continues to be the greatest of the Academy's visitor attractions. It made history in August when a young White Shark became entangled in a Bodega Bay fisherman's net, was released from it and taken to the Fish Roundabout, and was there viewed by 40,000 visitors and television audiences worldwide during the four days before she was taken to the Farallon Islands, and was last seen swimming rapidly to rejoin her kindred. During the third day of her confinement, 11,400 people stood in lines to see "Sandy." The Aquarium exhibits more kinds of aquatic animals than any other institution.

Tom Tucker, Curator, ably took over the day-to-day management of the Aquarium to release Dr. McCosker for his responsibilities as Director of Public Programs. Normal staff changes and funding limitations imposed by reduced City support were felt. Walter Schneebeli, Aquarium Collector at Steinhart for 33 years, transferred to another City department and position. This last year of his service he collected 8,891 live specimens in 87 trips. Roberto Ayala retired as painter, and Herb Thein replaced Jim Brennan as Chief Engineer.

The completed installation of a solar collector system, designed and fabricated by Fafco Solar Systems and Fafco, Inc., provided significant energy savings in water temperature regulation. It was made possible by gifts and grants from Mr. and Mrs. Maurice Rakowicz, Mrs. Marriner Eccles, and PG&E, and is the first solar heating system in a public aquarium.

Additional improvements are a 13,700-gallon fiberglass shark or dolphin recovery tank provided by Dorothy Johnston, skylights fitted over display tanks to save energy and enhance the exhibits, and renovation of the large dioramas in the reptile displays.

The aquarium is a research facility used by staff, students, and visiting scientists. Animal behavioral studies, desalinization experiments, and other research on fish taxonomy and aquaculture were emphasized. Dr. McCosker's and Wilson Clark's project, "Dispersed, Decentralized and Renewable Energy



Sources," received national attention from the Department of Defense and Senator Charles Percy.

Substantial financial support was provided for Aquarium projects by Mrs. Wilson Meyer, Mr. and Mrs. Jeffery Meyer, Mrs. Marriner Eccles, Mrs. Harry Johnston, the Pacific Gas and Electric Company, Dow Chemical Company, Fafco Solar Systems, Fafco Inc., and many other individuals.

EXHIBITS

Robert W. Bjorkland, Chairman since 1974, resigned at the end of the fiscal year. Patricia Burke, Exhibits Coordinator, continued ongoing management of the department activities, Dr. McCosker served as Acting Chairman, and Kevin O'Farrell continued as Chief Designer. An outstanding series of exhibits was presented.

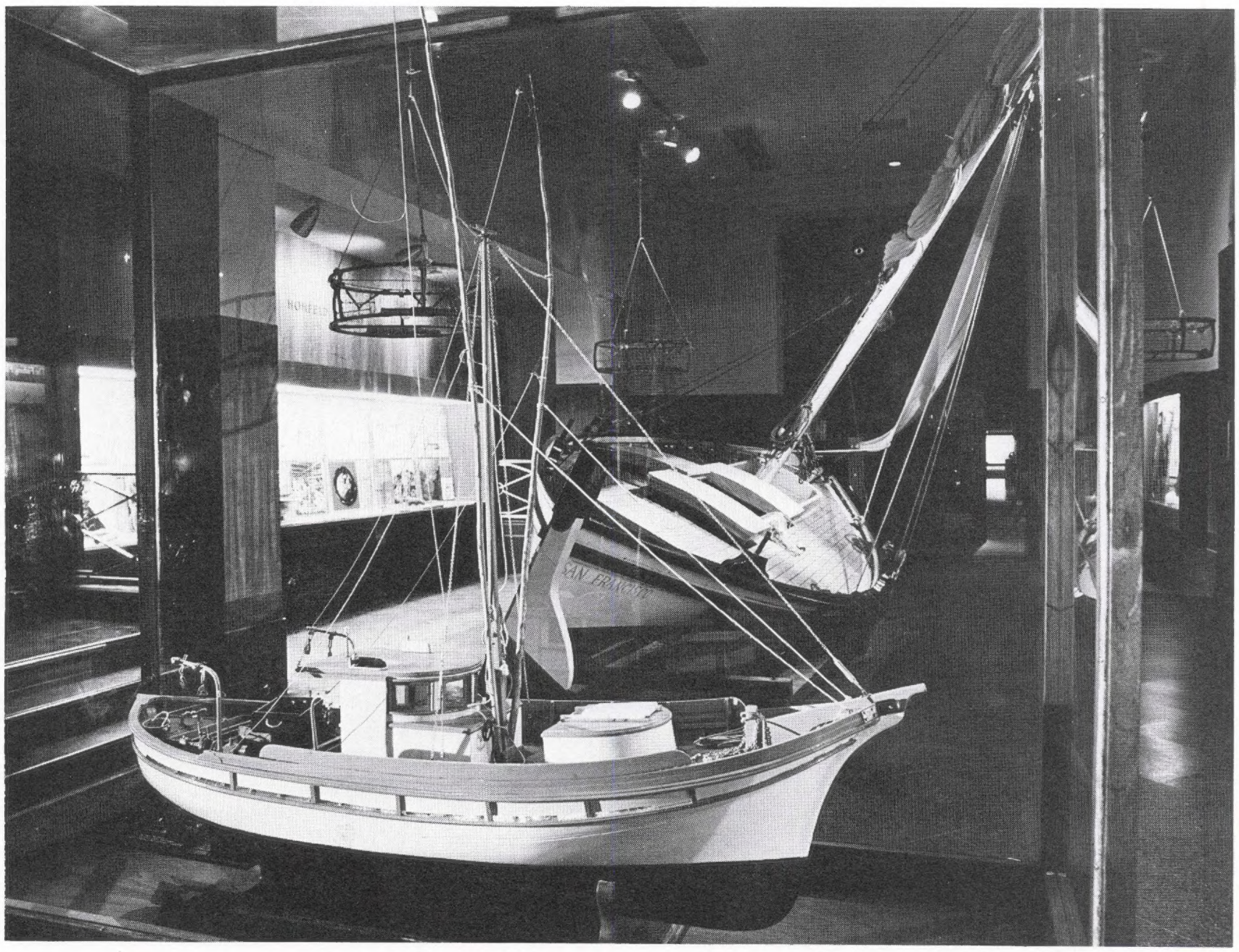
Native Americans were featured through the summer of 1980, with the exhibits "Hopi Kachina: Spirit of Life," "Woven Treasures: The Clay P. Bedford Basket Collection," and "The Ancestors: Native Artisans of the Americas." From September 18 through November 23, 1980, the glittering treasures of "Gold of El Dorado" adorned Lovell White Hall, sponsored by the American Museum of Natural History, and "The Great Murals: Cave Paintings of Baja California," photographed by Enrique Hambleton, filled Hohfeld Gallery. "Feather Arts: Beauty, Wealth, and Spirit from Five Continents" was shown from October 20, 1980, until April 30, 1981, in the Patricia Price Peterson and Atholl McBean Galleries.

An Academy-developed exhibit, "Exploring the Deep Frontier," was presented in cooperation with the National Geographic Society. It was based on the National Geographic book of the same name by Sylvia Earle and Al Giddings. Dr. Earle, Dr. McCosker, and Designer Kevin O'Farrell, with the Academy's exhibits and technical staff, produced an exhibition which combined artifacts and six audio-visual features, utilizing photographs and films by Aquarium Associate Al Giddings. Achievements of Academy scientists, as well as collections from their research departments, were shown.

"Exploring the Deep Frontier" was a breakthrough in museum presentation. It opened at the Academy for four months starting in December, 1980, and by popular demand was continued through the summer of 1981. A traveling exhibit, it has been booked by other institutions for the next three years.

"Maynard Dixon: Images of the Native American" opened June 18, 1981. Academy Trustee Peter B. Bedford sponsored the exhibition and Kirsten Bedford encouraged and coordinated its development. They enjoyed the wonderful cooperation of scores of owners of Dixon's works, of Edith Hamlin (Dixon), and of Dixon scholars Donald J. Hagerty and Howard Willoughby.

LAKE GUATAVITA
and the
LEGEND of EL DORADO
El Dorado, the golden, has come to symbolize the European search for a gilded paradise in the Americas. In Colombia the name grew out of the Muisca legend which recounted the offering of great quantities of gold and precious stones at Lake Guatavita. According to early Spanish reports of the legend, each ruler on taking office went through a ceremony of consecration at the sacred lake:
"At this time they stripped the heir to his skin, and anointed him with a sticky earth on which they placed gold dust...They plaided him on a raft...and at his feet they placed a great heap of gold and emeralds for him to offer to the god.
The gilded Indian then made his offering, throwing out all the pile of gold into the middle of the lake, and the chiefs who had accompanied him did the same. With this ceremony the new ruler was received, and was recognized as lord and king."
Juan Rodriguez Freyle, 1636



Some of the major exhibits of 1980-81: Above, "Gold of El Dorado," from the American Museum of Natural History. Right, "The Fishing Fleet: Changing Faces, Changing Times," prepared by the Academy and the Pacific Coast Federation of Fishermen. Right above, "Maynard Dixon: Images of the Native American," designed at the Academy in conjunction with the artist's family. Far right, "Feather Arts: Beauty, Wealth, and Spirit from Five Continents," from the Field Museum in Chicago.

MAYNARD DIXON

Above, the newly-opened Insect Room attracted many visitors. Right, Jerry Cobb, Planetarium Artist, and Jeff Carl, Technician, checking astronomical alignments in the planetarium.

The beautiful full-color, linen-bound and cased catalogue included essays by Hamlin, Hagerty, Ansel Adams, and Winona Tomanoczy, all of whom had intimate association with the artist, and Dixon's children, Constance, Dan, and John. The Maynard Dixon show will continue through October 18, 1981.

The Insect Room, a new permanent exhibit in North American Hall, was opened February 18, 1981. Designed by Hitoshi Sasaki under the direction of Dr. David Kavanaugh, the fascinating world of entomology is interpreted by means of rare and familiar specimens, photographs, and computerized audio-visual systems. Remarkable photographs by Dr. Edward S. Ross are featured. The result is a beautiful educational study of insects, the most numerous, diverse, and successful life form of our planet. The Insect Room was sponsored by a private gift made in honor of Katheryn Clarke Kendrick, in whose honor the room is dedicated and endowed.

A semi-permanent but changing exhibition featuring selections from four important anthropological collections of the Academy was opened in Wattis Gallery in April. It includes pre-Columbian Peruvian textiles from the Reitz Collection; Pueblo Indian art from the Elkus Collection; Hawaiian fishing artifacts from the Ostheimer Collection; and a variety of mortars, pestles, metates, and manos from the Elmer Gould Collection. Called "Preservation of the Past," the exhibit points up the importance of well-documented private collections which have been donated to the Academy.

An introductory audio-visual system was created for the Wattis Hall of Man by Dr. David Parker. It adds another dimension, sound, to the exhibits in that important hall. Also added to the Wattis Hall of Man was a collection of Australian Aboriginal art and artifacts donated by the Australian government and presented by Consul-General G. V. Brady.

Significant temporary exhibits shown during the year included "The American Gemstone Jewelry Collection," "The Fishing Fleet: Changing Times, Changing Faces," "The Agpalilik Meteorite," "Horology," and "Marine Research at the California Academy of Sciences." Among the several excellent photographic exhibits were "Mirounga! The Elephant Seals of Ano Nuevo Island" by Ken Parker and Eugene Fisher; "Afghanistan" by Edward S. Ross; "Reflections on Alaska" by Rick Brugger; "Western Wildflowers, Weeds and Grasses" by Monte Hartman; and "Images of Japan" from the Los Medanos Camera Club.

MORRISON PLANETARIUM

Lee W. Simon, Director. A total of 286,727 persons attended programs in Morrison Planetarium during the year. Of these, 146,904 paid admission to conventional planetarium programs; 22,997 were children and teachers in class groups for whom 125 special student programs were presented; and 99,732 were for light show performances. The special program "Exploring the Skies of the Season," given at 11:00 a.m. on Saturdays and Sundays, attracted 8,310 people.

Attendance for "Exploring the Skies of the Season" was up eighteen percent, and overall attendance of regular public and school programs also increased.

During the year two programs which departed from the conventional live lecture format were presented, "Cosmos," written and tape-narrated by Carl Sagan, and "The Last Question," a science-fiction production based on a story by Isaac Asimov. The three conventional presentations were "The Universe Unveiled," "The 'New' Christmas Star," and "Islands in the Sky."

This was the first full year of operation of the laser and incandescent light and sound shows by Eye See the Light Show, Inc. Three programs, "Lights Fantastic," "Rock Fantasy," and "Spotlight: Journey," provided diverse sound and light experiences.

EDUCATION

Susan Douglas, Coordinator. The Education Department provides educational and interpretive services for the Academy's members as well as the general public. Mrs. Douglas assists and is responsible for the coordination of those efforts. New this year to the Education Department was the Museum Education Intern Program. Students from local colleges received academic credit while working in various educational activities. The Department presented a workshop for teachers, to augment the exhibits "Feather Arts" and "Exploring the Deep Frontier," and prepared and distributed booklets and materials about those special exhibits. The Education Department includes the Junior Academy, Discovery Room, Docent services, and Adult Education and Travel.

JUNIOR ACADEMY. Susan Douglas, Supervisor. This year the Junior Academy began field trips for members and their families for the periods between class sessions. Christmas break was used for whale watching and tours to see the elephant seals at Año Nuevo Park. During the spring vacation families went to Angel Island and students visited Big Basin State Park. Pepperwood Ranch Natural Preserve and Monterey Bay were also field-trip objectives.

During the year 53 courses were offered to 650 members, using laboratory materials and the resources of the Academy's exhibits and collections to inform the students about the natural world.

DISCOVERY ROOM. Diane Butler, Coordinator. The 45,000 individuals who came to the Discovery Room during the year were encouraged to "please touch" by the Academy's 40 volunteer Discovery Guides, who staff the unique facility. A new brochure was distributed to teachers and group leaders, with emphasis on reaching Special Education Centers. The objects and furnishings in the Discovery Room were selected to assist handicapped persons through the use of large type and braille labels and diverse sensory experiences, in an environment conducive to learning. Since opening in September, 1978, the room has welcomed nearly 125,000 children and adults.

Continuing support and inspiration are provided by the Discovery Room's sponsor, Academy Friend Janet Nickelsburg.

Right, Janet Nickelsburg (center), and visitors exploring the Discovery Room which she sponsored. Below, Susan Douglas, Education Coordinator and Junior Academy Supervisor, with Junior Academy members.

DOCENT COUNCIL. Mrs. Allison Gibbs, Chairman, and Diane Butler, Coordinator. Increased utilization of Docent services by San Francisco teachers contributed to the Council's record year of service to 25,000 students who were reached by 138 dedicated volunteers. Special tours of the museum and aquarium for class groups continued to be the most important function, but 7,800 youngsters were visited in their classrooms. This represented a forty percent increase in SUPERVAN trips. SUPERVAN was fully booked within a week after the opening of each reservation period. Docents also shared their knowledge at libraries, hospitals, and recreation centers, and assisted at the Tidepool exhibit. Docents volunteered in all areas of the Academy.

A course in Earth Sciences was completed by 31 docents, refresher workshops in five disciplines were presented, and there were many enrichment lectures and excursions. The Docent Council provided a holiday party for the Academy staff, and in many other ways assisted the institution as well as its visitors.

In October former trustee Peter Haas gave the Academy a substantial gift in honor of retiring Board Chairman Paul L. Davies, Jr. Mr. Davies, recognizing that Mr. Haas had provided the first support for the Docent program, designated that this gift be directed to the use of the Docent Council.

Trustee Ann Gillette was appointed to serve as liaison between the Board of Trustees and the Docent Council, a position long and effectively filled by the late Claire Lilienthal.

ADULT EDUCATION AND TRAVEL. Sandra Lelich, Coordinator. Thirty courses were offered for Academy members, as well as four symposia and a six-part film series. There were 3,246 participants. There were 41 California study tours which took members on excursions ranging from half-day walks to four-day trips by motor coach. Members' programs were scheduled every month, each with three sessions, and ten additional special free programs were presented.

The Expedition Travel program was very active. Seventy members participated in one cruise to the Galapagos on the M.V. *Santa Cruz*, and sixty-four on another, "Baja California Circumnavigated," which spent two weeks in the Gulf of California and along the west coast of the peninsula.

Curator of Anthropology Dorothy Washburn led two overland expeditions to Southwest Indian country, and Curator of Botany Dennis Breedlove guided another through his study area in Chiapas, southern Mexico. The Red Sea, Jordan, and Egypt; Alaska, led by Senior Scientist Robert T. Orr and Mrs. Orr; another Alaska trip with Jacqueline Schonewald; Baja California Gray Whales; Treasures of Japan with Gladys Smith; Natural History of the California

Left, the *Pacific Northwest Explorer* visited San Pedro Martir in the Gulf of California, on the Academy's 1980 cruise, "Baja California Circumnavigated." Right, members and the staff of Invertebrate Zoology explore the wonders of a Pacific tidepool on a California Study Tour. Below, Mrs. Enrique Hambleton with an elephant seal pup on the cruise around Baja California.

Coast with Professor Stanley C. Williams; and National Parks and Monuments with Honorary Curator of Minerals Charles W. Chesterman were among the others. Fifteen tours were offered and 405 members went.

The Academy's travel program provides opportunity for members to visit unusual places with companions of similar interests and the help of staff representatives or guides. The cost of each trip included a donation to the Academy, and the travel program is a fundraising as well as a service effort. Geraldine Lindsay was Chairman of the Travel Committee, which included John McCosker, Robert T. Orr, and Sandra Lelich.

RESEARCH ACTIVITIES

Dr. William N. Eschmeyer, Director of Research. The Academy's purpose is the investigation and interpretation of natural sciences. Vast collections of natural history specimens have been accumulated, usually in the course of studies, and are carefully preserved as vouchers for those investigations and resources for future research. The scientific work of the Academy is largely "systematics," the classification and inventory of the life forms, present and past, of this planet. That basic knowledge is essential for proper utilization and preservation of the planet's resources, and for the understanding of the paths of evolutionary development. The comparatively new Anthropology Department preserves and interprets the artifacts of indigenous human cultures and their adaptations to live in the earth's diverse environments.

The collections of the California Academy of Sciences are research resources for the broad scientific community, and are available to all qualified scientists. For example, a mammalogist from the People's Republic of China came recently to study our collection of Manchurian mammals, and anyone doing comprehensive systematic studies must consult the Academy's collections, which are the focus of international attention.

The National Science Foundation provides important curatorial support for five of the research departments: Botany, Entomology, Herpetology, Ichthyology, and Invertebrate Zoology. All of these collections rank among the five most important in the nation.

ANTHROPOLOGY

Dorothy K. Washburn, Chairman and Assistant Curator. Dr. Washburn continued her research on the design structure of Southwest ceramics, and also received a grant of $30,000 from the National Endowment for the Humanities to prepare and publish a catalogue of the Charles and Ruth Elkus Collection of Southwest Material Culture.

The Anthropology Department was given an important selection of Southwest Indian baskets by Mr. and Mrs. Clay P. Bedford, following the exhibit "Woven Treasures: The Clay P. Bedford Basket Collection" in Wattis Gallery. Other accessions were 100 archaeological and historical artifacts from a Pepperwood Ranch Environmental Impact survey; a collection of 46 pieces of Aboriginal art and artifacts from the Government of Australia, presented by Consul General G. V. Brady; and a 135-piece watch collection, appraised at $113,300, from an anonymous donor.

BOTANY

Frank Almeda, Jr., Chairman and Associate Curator. Dr. Almeda was appointed Chairman of the Botany Department effective January 1, 1981, at which time he was also appointed to the Decker and Martha McAllister Chair of Botany. This is a fully endowed curatorial position established by Mr. and Mrs. McAllister on November 1, 1980. The Department and the Academy are most grateful for their very significant contribution.

During the fiscal year an estimated 25,000 specimens were added to the herbarium, which now has approximately 1,475,000 specimens. Noteworthy accessions included plants from Mexico, Central and South America, Hawaii, Nevada, and California. A total of 8,874 specimens in 62 transactions was loaned to

professional botanists and graduate students at institutions throughout the world. The Department was host to 550 professional scientists and students who came to study collections, utilize the library, or consult staff members. In addition, 16 organized groups were given instructional tours on the use and function of the herbarium facility. In a continuing service of providing botanical information, departmental staff answered over 350 inquiries from state, federal, and private agencies, as well as the interested public.

The National Science Foundation provided funding in the amount of $47,495 for salaries of two technical assistants to continue integration of the Dudley Herbarium of Stanford University with that of the California Academy of Sciences.

Dr. Almeda spent six weeks in Mexico and three weeks in Costa Rica gathering specimens, cytological materials, and field data for his ongoing monographic and floristic studies of Neotropical Melastomataceae and Symplocaceae. His field work resulted in the collection of some 3,000 specimens.

Dr. Breedlove spent a major portion of the year in Mexico in connection with his research on the Flora of Chiapas. He was visited by a succession of professional botanists who are collaborating with him on this project. Their combined efforts resulted in the collection of more than 15,000 specimens. In August of 1980 he also made a general collecting trip to western Mexico with Dr. Almeda. One-third of the more than 3,000 specimens that resulted from this trip were gathered in remote and litte-known barranca regions in the state of Nayarit.

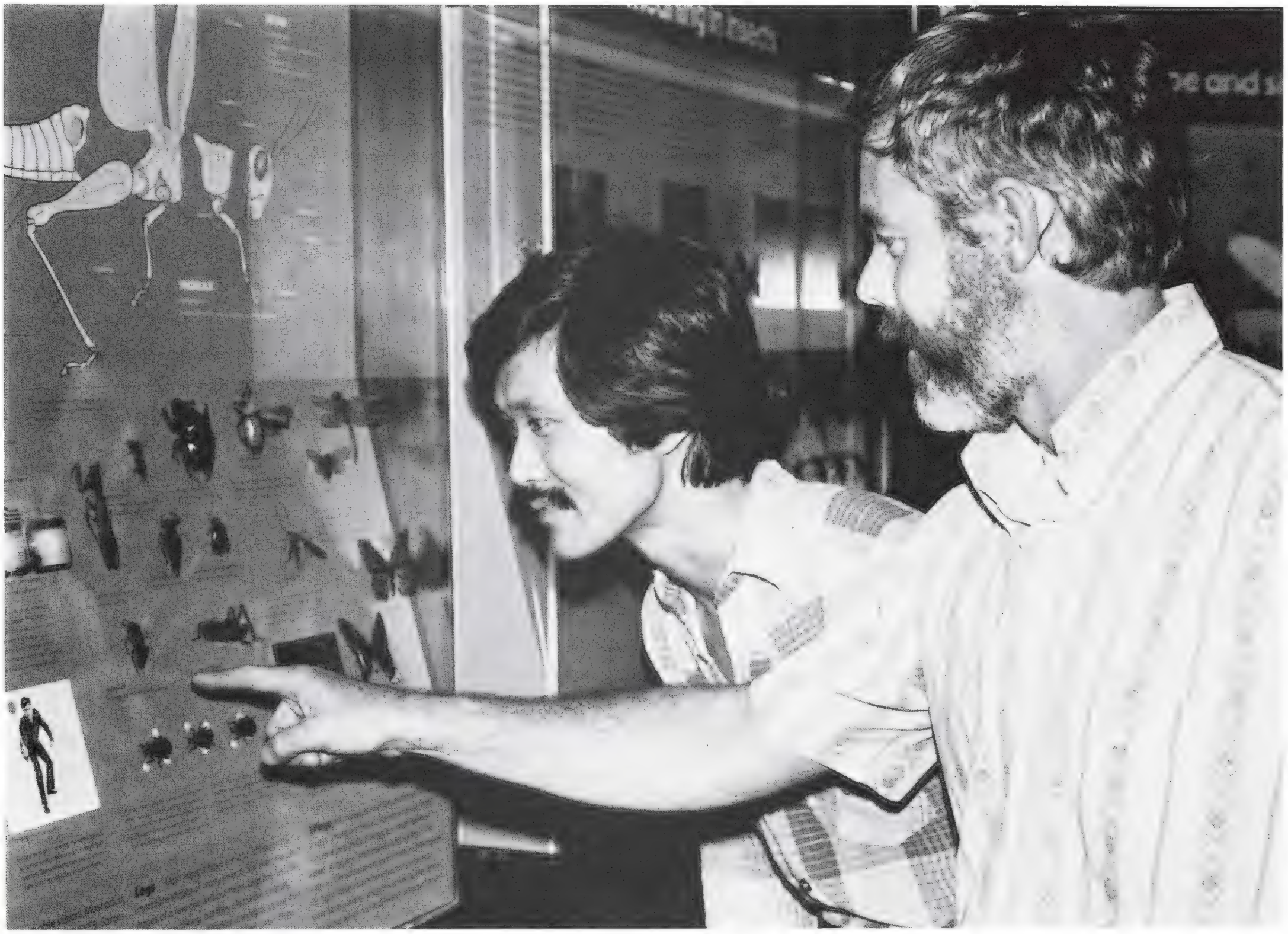
Dr. Alva Day continued management of the integration activity in the herbarium. She also continued her revisionary studies of western American Polemoniaceae. Mr. John Thomas Howell continued work on a Flora of the Sierra Nevada and Central Valley, and completed treatments for several genera of Compositae and Scrophulariaceae. During the year he made several short field trips throughout the state. Dr. John H. Thomas carried out field work in various parts of central California as part of his research on the Flora of Central California.

Dr. Sylvia A. Earle, Curator of Phycology, conducted field work off Yucatan, Mexico, in the Durban and Capetown areas of South Africa, in the Red Sea, and off Hawaii. She continued her central role in encouraging proper utilization of ocean resources as a Director of the World Wildlife Fund, both of the United States and International, and as member of the Council of the International Union for the Conservation of Nature.

Dr. Earle traveled to many parts of the world in order to deliver more than twenty-five major lectures, during which she granted many press and television interviews. She was awarded the Order of the Golden Ark by the Prince of the Netherlands, the Lowell Thomas Award by the Explorer's Club, and was named Woman Scientist of the Year by the California Museum of Science and Industry.

With Dr. McCosker, Dr. Earle developed the exhibit "Exploring the Deep Frontier" and lectured to the Academy membership on "The World Darwin Never Knew."

Left, Anthropology Collections Manager Joan Bacharach, Curatorial Assistant Leslie Flint, Chairman Dorothy Washburn, Australian Consul General Geoffrey V. Brady, CAS Director George Lindsay, and Australian Consul (Information) Geoff Dixon observing the exhibit of Australian Aboriginal sculptures donated to the Academy by the Australian consulate. Above, Frank Almeda, Associate Curator of Botany, interprets the spring flora for members at the Academy's nature preserve, Pepperwood Ranch.



Vincent Lee, Senior Curatorial Assistant, and David Kavanaugh, Associate Curator of Entomology, checking exhibits in the Insect Room, developed jointly by the scientific and exhibits staffs.

ENTOMOLOGY

David H. Kavanaugh, Chairman and Associate Curator. The collection of insects and arachnids now contains about 6,916,000 processed specimens, including 110,637 which were accessioned and added during the year. These represent contributions from 175 individuals, institutions, or expeditions, and include 157 primary type specimens. Major donations received were more than 16,000 specimens of the carabid beetle genus *Nebria* and related groups from the D. H. Kavanaugh Collection, 14,700 European and United States insects from P. H. Arnaud, Jr., 12,500 Philippine insects from the F. C. Hadden Collection, more than 10,000 insects from California and adjacent areas from E. L. Smith, about 9,000 African insects from E. W. Ross, and about 4,000 insects from New Guinea, Japan, and the United States from T. W. Davies.

A total of 60,454 specimens were loaned to 189 persons in 287 separate transactions. Loan recipients represented all parts of the United States and 21 foreign countries on six continents. The department had 1,311 visitors, including 509 visits by professional entomologists, 168 graduate students, 77 undergraduates or high school students, and 732 who came as individuals or in groups.

The Entomology Department was awarded a new five-year grant from the National Science Foundation, which this year provided $65,000 for salaries of technical assistants and for supplies required for the maintenance of the collections.

Dr. Kavanaugh continued his systematic and biogeographical studies of carabid beetles. Dr. Arnaud worked on revisions of the empidid genera *Hilara* and *Medetera.* Dr. Pulawski worked on revisions of the genera *Tachysphex* in North America and *Gastrosericus* for the world, and, with a Russian colleague, on Cretaceous fossil wasp material from the Soviet Union. Dr. Philip continued his studies of Neotropical and Oriental Tabanidae. Dr. Williams published a monograph of the scorpions of Baja California, and continued field investigations of scorpions in western North America as well as nocturnal insects in the central Sierra Nevada. Dr. Briggs began work on a bibliography of California cave biology and a project on the palpigrads of the western United States. Dr. Weissman expanded his project on the Orthoptera on Baja California. For this project he is working with fourteen collaborators.

Dr. Wojciech J. Pulawski, of Wroclaw University, Poland, joined the department as Visiting Curator on February 1, 1981. Dr. Edward S. Ross, who has been a staff member of the Entomology Department since 1939, retired as Curator on October 31, 1980. He continued working as Curator Emeritus, and at the end of the fiscal year was on a long field trip collecting in southern Europe and Morocco for his monographic study of the Embiidina.

GEOLOGY

Peter U. Rodda, Chairman and Curator. The Geology Department's general collections include megafossils, (mostly invertebrates,) diatoms, and minerals. The Recent shell collection was transferred to the Invertebrate Zoology Department at the beginning of this fiscal year.

The megafossil collection contains about 70,000 catalog lots of which 608 lots containing approximately 2,000 individual specimens were added during the year. Significant additions from Cretaceous rocks of California, including the first western hemisphere record of the nautiloid cephalopod *Eucymatoceras,* were received from Clarence Schuchman; from Neogene rocks of California sent by Frank Perry and Raj Naidu; and from Neogene rocks of Ecuador sent by William Pitt. Other important accessions resulted from departmental research in San Mateo County.

Margaret M. Hanna continued to care for the diatom collection, which contains approximately 52,000 slides, 137 slides having been added during the year. Bernard Hartley donated 23 slides of English diatoms and Robert Holmes sent 114 slides of the genus *Entogonia.*

The mineral collection, under the supervision of Mineralogist Jean DeMouthe Smith, contains 12,133 accessioned specimens, including 600 which were added during the year. Significant accessions include 213 gemstones from the Estate of Gerard Pomerat, and many fine mineral specimens donated by A. L. McGuiness and by Steven Pullman. Other important material received but not yet accessioned includes 1,138 micromount specimens donated by Leo Rosenhahn and 150 miscellaneous specimens donated by Steven Smale.

Loans of 764 specimens were made to 20 institutions during the year, and the department had 265 visitors. Dr. Hiroshi Noda of the Institute of Geoscience, Tsukuba University, spent several weeks studying Neogene bivalves. The mineral collections were visited by members of the Bay Area Mineralogists in October, and in May the 1981 meeting of the Diatom Research Group of the Society of Economic Paleontologists and Mineralogists was held at the Academy, during which Margaret Hanna received a special citation for her services to diatom studies.

Department personnel were involved with exhibit development, teaching docent and adult education courses, leading field trips, and providing other services for members.

Dr. Rodda continued research on fossil invertebrates of northern California and on the evolution of fossil Gastropoda. With Jean Smith he worked on a study of the geology of the Pepperwood Ranch Natural Preserve.

Below left, Margaret Hanna, Honorary Curator of Diatoms, at work on the collection.
Below right, Jean Smith, Mineralogist, curating mineral specimens.

HERPETOLOGY

Alan E. Leviton, Chairman and Curator. During the fiscal year 1,241 specimens were added to the department's collections, including significant additions from eastern Africa sent by Leo Hoevers and Penny Johnson; from Tibet donated by Lawrence Swan; and nearly 300 specimens of Mexican amphibians and reptiles from Dave Mullen. In all, 22 countries were represented in the accession records for the year. The research collection now has about 225,000 specimens.

Twenty-three institutions requested loan materials, and 1,555 specimens were handled in loan transactions. There were 156 professional visitors during the year.

The National Science Foundation approved a five-year grant of $275,000 for support of the collections, of which $54,000 was received during the year.

Dr. Leviton continued research on the reptiles of Southwestern Asia. Dr. Drewes completed his dissertation study of the tree frogs of Africa, Madagascar, and the Seychelles Islands. Dr. Brown completed his manuscript on Philippine scincid lizards and started two months of field work in Australia.

Dr. Leviton is Executive Director of the Pacific Division, American Association for the Advancement of Science, which has long been headquartered at the Academy. He also conducted research on the history of the Academy and biographical studies of early scientists, some in collaboration with Dr. Michele L. Aldrich.

A grant of $22,600 for a study of computerized collections data-banking by selected natural history museums was made to the Academy by the National Science Foundation. The survey will be conducted by Dr. Leviton, Dr. Robert Gibbs, who is Curator of Ichthyology at the National Museum of Natural History, and curators from several other major museums.

ICHTHYOLOGY

William N. Eschmeyer, Chairman and Curator, and Director of Research for the Academy. The fish collection was increased by 3,438 lots representing 6,016 specimens during the year, and now totals 183,000 lots and more than 1.5 million specimens. The accessions included many type specimens and several important collections including Tibetan fishes from Lawrence M. Swan, Australian atherinids from W. Ivantsoff, Galapagos and Fanning Island specimens from John McCosker, freshwater Mexican fishes from Alfred D. Castro, and Aleutian Islands area fishes from Tomio Iwamoto. Additional large collections of Alaskan marine fishes were received through the Outer Continental Shelf Environmental Assessment Program.

Loans of 8,105 specimens were sent to 94 scientists and students, and there were 75 visitors who used the collections and facilities at the Academy.

The National Science Foundation provided $55,814 for support of the fish collection, which included two curatorial assistants and funds for curatorial supplies and equipment.

A grant from the Bureau of Land Management through the National Oceanographic and Atmospheric Administration to act as the repository for voucher specimens during Alaskan faunal surveys was renewed in the amount of $44,254. Scott Cutler serves as project leader for this grant which supports, in addition, a half-time technician. To date 7,907 lots have been processed in this program.

Dr. Eschmeyer continued his administrative duties as Chairman of the department and Director of Research for the

Below left, Lawrence Swan, SF State Professor of Biology, just returned from Tibet and China, presents to Robert C. Drewes, Assistant Curator of Herpetology, a rare volume on the frogs of China, a gift from the Academia Sinica. Below right, William N. Eschmeyer, Curator of Ichthyology and Director of Research, preparing plate layouts for the "Peterson Field Guide to North American Freshwater Fishes." Right, Daphne Dunn, Assistant Curator of Invertebrate Zoology, demonstrating the Technicon tissue processor.

Academy. He completed a manuscript for the *Peterson Field Guide to the Pacific Coast Fishes.* He also completed manuscripts on the flying gurnards (Dactylopteridae), caracanthids (Caracanthidae), and manuscripts on his specialty, scorpionfishes.

Dr. Tomio Iwamoto continued his studies of grenadier fishes of the eastern Pacific and western Indian Ocean, in addition to editing the Academy's scientific publications. He participated in a month-long cruise to the western Aleutian Islands aboard a Japanese fisheries vessel, then spent two weeks in Japan visiting museums and fishery research stations.

W. I. Follett, Curator Emeritus, continued studies of fish bones from Indian middens. Mrs. Lillian J. Dempster worked on fish nomenclature, was indexer for the Academy's *Proceedings,* and collaborated with Dr. Eschmeyer and others in the preparation of manuscripts.

INVERTEBRATE ZOOLOGY

Welton L. Lee, Chairman and Curator. Dr. Daphne Fautin Dunn was appointed Assistant Curator of Invertebrate Zoology on July 1, 1980. Dr. Barry Roth transferred from the Geology Department on July 1, 1980, to be Senior Scientific Assistant for Malacology and Acting Assistant Curator.

Approximately 6,000 lots of specimens were received from various studies, projects, and individuals. On July 1, 1980, the conchology collections of more than 140,000 lots were transferred from the Geology Department to the Invertebrate Zoology Department, to be combined with the department's wet preserved mollusk collection. The total specimen holdings of the Invertebrate Zoology Department are now estimated to exceed 240,000 lots. During the year 739 lots of specimens were loaned to 19 borrowers. Many visitors used the collections and department library.

The National Science Foundation continued grant support for the Invertebrate Zoology collections, $52,165 having been provided in this period. The Wells Fargo Bank granted $2,000 for a sample reconstruction of facilities and curatorial methods for the dry mollusk collection, and department associates and individuals gave $700 in addition. The Shasta-Trinity National Forest contracted for a California Native River Snail Study in the amount of $14,614, for which Dr. Roth was the Principal Investigator, and Dr. Dunn was Principal Investigator for a contract with the U.S. Antarctic Research Program to identify Antarctic actinians and corallimorpharians.

Expanded storage facilities for the wet preserved material made possible the reorganization of the collection, which is a continuing project. The F. B. Steiner Southwest Asian Collection of more than 500 gallons of wet preserved benthic samples is being sorted and prepared for study by specialists.

Dr. Lee studied the systematic significance of combined patterns of sterol, protein, and pigments in the Porifera. He worked also on the systematics of west coast haplosclerids (Porifera) and Urochordata.

Dr. Dunn investigated the systematics of Arctic and Antarctic Actiniaria, systematics of the Clownfish Anemones, Stichodactylidae, and prepared for a field study of Great Barrier Reef Stichodactylidae ecology. Dr. Roth and his associate Peter Pressley studied the ecology and distribution of the endemic land snail *Monadenia setosa,* continued work on the land snails of the Channel Islands, and investigated geographic relationships of non-marine mollusks of the western states. Mr. Chivers worked on the decapod Crustacea of the northeastern Pacific, and particularly of the San Francisco Bay and Delta system.

ORNITHOLOGY AND MAMMALOGY

Luis F. Baptista, Chairman and Associate Curator. Dr. Baptista joined the Academy staff on August 1, 1980. A total of 500 bird specimens and 592 mammal specimens was accessioned during the year. Noteworthy were 370 birds and 466 mammals collected in California, Arizona, and Baja California, Mexico; a Grayson's Dove (*Zenaida graysoni),* a bird now extinct in the wild, from Dr. Baptista; a Dusky Warbler (*Phylloscopus fuscatus*) from S.E. Farallon Island, a vagrant bird from Siberia; and an Arch-beaked Whale (*Mesoplodon carlhubbsi*) infant from Pt. Reyes National Seashore. The Academy's research collections now have about 83,000 birds and 22,000 mammals. A large series of Galapagos birds collected in 1905-1906, western United States waterfowl, and diverse marine mammals are particularly important.

Forty-four loans which included 552 birds and 72 mammals were made, and 26 loans were returned. Outstanding at the end of the year were 35 loans representing 52 mammals and 593 birds.

A total of 752 visitors' days were recorded as follows: 79 visiting scientists' days; 146 graduate students, 150 undergraduate students; and 180 other visitors, many requesting information or identifications. Professional scientists came from West Germany, China, Mexico, the Philippines, Australia, England, and Ecuador.

Dr. Robert T. Orr, Senior Scientist, completed the fifth edition of his text *Vertebrate Biology.* He continued active participation in the Docent Program, and with Mrs. Orr led members' trips to Alaska, the Sea of Cortez, and the Mendocino coast. Dr. and Mrs. Orr visited New Zealand in February and March, and had opportunity to study and photograph New Zealand fur seals at the Canterbury University Marine Laboratory at Kaikura.

Jacqueline Schonewald, Senior Scientific Assistant, carried on her duties of Collections Manager and completed her part, the birds and mammals, of the Fort Mason Faunal Analysis contracted with the Academy by the National Park Service. She led an Academy members' trip to Alaska in June, 1981. Mrs. Schonewald identified mushrooms, bones, and other specimens for government agencies and the general public. Ms. Lisa Thomsen Jones was frequently consulted on the techniques of museum preparations and the care of live animals.

SCIENTIFIC PUBLICATIONS

Tomio Iwamoto, Chairman and Editor. Eight issues of the *Proceedings,* 167 pages and one issue of the *Occasional*

Above, Luis Baptista, Associate Curator of Ornithology, recording bird songs as part of his study of bird language. Right, an Academy field trip to Pepperwood Ranch Natural Preserve, in Sonoma County.

Papers, 136 pages, were published at a printing cost of $16,840.

Members of the Scientific Publications Committee were Frank Almeda, Daphne F. Dunn, William N. Eschmeyer, Tomio Iwamoto, and George Lindsay. Lillian J. Dempster served as Indexer.

J. W. MAILLIARD, JR. LIBRARY

Ray Brian, Librarian. The Mailliard Library is used primarily by members of the research staff, Academy members, and scholars and students who come to consult references not otherwise available to them. Each research department has a library and reprint collection of appropriate materials. The Earl S. Herald Memorial Library, located in Steinhart Aquarium, specializes in aquarium culture, fisheries, and systematic ichthyology. The Botany, Entomology, Ornithology, and Ichthyology departmental libraries are all very strong and are essential research assets. Very rare books, and books and journals of more popular interest or multidisciplinary nature, are housed in the central Mailliard Library.

The library holdings include approximately 85,000 volumes of scientific books and periodicals. The library subscribed to 396 journals, and received 1,271 others from 636 various learned societies through exchange. During the year 342 book titles were purchased, representing 503 volumes.

Service to users was facilitated by the inauguration of BAKER, a University of California, Berkeley, service which enables off-campus special borrowers to telephone a request and have the document delivered by the United Parcel Service within a day or two. Interlibrary loans are made by the Mailliard Library, extending its service to the broader scientific community as well as to the Academy's staff.

Director Emeritus Dr. Robert C. Miller donated his private scholarly library to the Academy during the year, and Mrs. Tracy Storer contributed several very rare and old books on natural history from the library of the late Dr. Tracy Storer. Books now valued at more than two million dollars have come to the library through gifts and bequests of private collections and add significantly to the richness of the Mailliard Library's holdings.

PEPPERWOOD RANCH NATURAL PRESERVE

Pepperwood Ranch Natural Preserve is a 3,117-acre area of relatively undisturbed California annual grassland, oak woodland, serpentine chaparral, Douglas fir forest, riparian woodland, and pockets of redwood forest located in Sonoma County. The original Pepperwood Ranch was 1,357 acres purchased by Kenneth K. Bechtel in the early 1940's, to which he added adjacent properties from time to time to protect them from commercial exploitation. Mr. and Mrs. Bechtel wanted to preserve the important natural resource they had acquired and consulted such authorities as Paul Sears, Joseph Wood Krutch, and A. Starker Leopold concerning how this could best be accomplished.

Upon Mr. Bechtel's death in 1978, Pepperwood Ranch became the property of the Belvedere Scientific Fund, which on February 27, 1979, deeded it to the California Academy of Sciences with the condition that it be preserved in its present natural state and utilized for research and educational activities in the natural

Above, painter's brushes on display within the Maynard Dixon Exhibit in the Patricia Price Peterson and Atholl McBean Galleries. Right, Mr. and Mrs. Rudoph Peterson and Mrs. and Dr. Lindsay at the opening of the Dixon exhibit.

and environmental sciences. It had been Mr. and Mrs. Bechtel's desire that the Academy assume responsibility for the proper protection and management of this valuable resource.

There are five houses on Pepperwood, all located in its southern part where they do not intrude or interfere with the preservation of the unspoiled habitat. One has been remodeled into an interpretive center for Junior Academy and other classes visiting Pepperwood for field trips and natural history courses. Another house is reserved for visiting scientists.

Academy scientists are preparing an inventory of the biota of Pepperwood. An Academy trustee granted $25,000 for the development of a comprehensive plan for its ultimate best use. That will be a combination of research and educational activities compatible with the principal objective of preserving the wonderful natural asset for the future. That was Kenneth Bechtel's wish.

BUSINESS OFFICE

Nancy B. Dykes, Business Manager. Mrs. Dykes is responsible for the business affairs of the Academy, and for the development and supervision of the annual operating budget. With the guidance of the Treasurer, Eugene A. Shurtleff, and the Finance Committee, she looks after the endowment and special purpose funds, which are managed by three investment firms; and, working with Trustee Peter B. Bedford and Building Manager Robert E. Berger, is responsible for the Academy's Commercial Building. With Aquarium Director John McCosker, Mrs. Dykes develops the City budget request for funds for Steinhart Aquarium, appears at budget hearings before the Mayor and the Board of Supervisors, and accommodates that which the City provides, with the needs of the facility. She serves as personnel officer and is responsible for employees' benefits and records. All National Science Foundation, National Endowment for the Arts, and National Endowment for the Humanities grants, and other grants and contracts, are processed through her office. The position of Business Manager of the Academy is particularly important and demanding.

The Business Manager is responsible for all activities of the Business Office,

which is under the direct supervision of Jane Yau, Controller. Freda H. Sherman, Admission Supervisor, recruits cashiers and ticket takers, and is responsible for attendance records and income from admission fees. The bookkeepers, accountants, and other Business Office personnel are vital for the operation of the Academy, and their diligence and enthusiasm are appreciated.

DEVELOPMENT

Jack Kolbert, Director of Development. The McKinsey & Co., Inc., report of February 5, 1980, predicted the effect of new programs, capital needs, and inflation on the Academy's financial requirements over the next five years, and recommended that the Development Department be strengthened. An enlarged Development Committee of the Board of Trustees was appointed, under the Chairmanship of Jeffery W. Meyer. Dr. Jack Kolbert was appointed Director of Development on September 1, 1980, Mr. Brett C. Stearns was retained as Legal Counsel to specialize in deferred giving, and the development office and staff were expanded.

A "Challenge 80" grant of $400,000 from the National Endowment for the Arts required a three-to-one match, $886,000 of which has been raised from qualifying bequests, a Unitrust donation of $150,000, the proceeds of a benefit "Fish Fair," and gifts from members. A letter about a match requirement from Mr. Peterson was responded to by 1,261 members who contributed $83,200 by the end of the year. We are deeply grateful for this wonderful expression of generous confidence, and in turn are confident that the remaining $314,000 match requirement can be met. The permanent endowment will have been increased $1.6 million during a period of financial stress.

Deferred gifts and bequests have been enormously important to the Academy, but there has been no serious or consistent program to encourage deferred giving. A Pooled Income Fund to enable donors to make current gifts and retain life income, which provides important tax advantages, is being established and will be publicized. In April, 1981, the Academy received a gift of $150,000 from a member which will provide him with income for his lifetime, an immediate income tax deduction, and a substantial reduction in his estate tax. An Academy volunteer has pledged $100,000 for a unitrust. Mr. Stearns is preparing information about these attractive plans for distribution to those who might like to investigate them.

"Friends of the Academy" represent a core of Academy supporters who give at least one thousand dollars each year. Trustee John Sutro was Chairman of the "Friends" until retirement from the Board in October, 1980, when Mr. Sherman Chickering succeeded him. Mr. Chickering presided at an "Appreciation Event" held March 22, 1981, to express gratitude to the "Friends" and other major donors for their support. At the end of this report period 101 persons and couples are listed as "Friends of the Academy" as shown on page 29.

Corporations and corporate and private foundations have long helped the Academy with contributions of funds for operations as well as for special projects. This year the business community was asked to continue and increase its support. Contributing corporations and foundations are gratefully acknowledged on page 28.

Left, Academy poster by Dan Gilbert, commissioned by the Nature Company. Above, Doris Ketcham and Cecil Reichert, Picture Collection Associates, proudly display a rare 1849 lithograph of San Francisco, presented by Mrs. Franklin T. Hale.

PUBLIC INFORMATION

Pam Wing, Public Information Officer. Through newspapers, magazines, radio, and television, the Public Information Office is responsible for publicizing the Academy's special events and exhibits. This year brought many opportunities for publicity with such exhibits as "Gold of El Dorado" and the two major ones produced by the Academy's staff, "Exploring the Deep Frontier" and "Maynard Dixon: Images of the Native American." Newspaper, magazine, and television coverage of these events was excellent, for which we thank the reporters, editors, and cameramen. News coverage of a white shark in the Fish Roundabout appeared all over the world.

In addition to media contact, the Public Information Office is responsible for the monthly *Academy Newsletter,* for exhibit opening receptions, special events, and entertaining and providing press conferences for special guests. Deidre Kernan assists with these activities. Lloyd E. Ullberg, staff photographer, provides publicity photographs as well as illustrations for *Pacific Discovery* and the *Annual Report.*

MEMBERSHIP

Alice H. Franco, Membership Services Coordinator. There were 13,389 members on July 1, 1981, compared with 12,612 on that date in 1980, the start of this report period, and gross income from membership fees was $225,654.00, an increase of five percent.

Increased cost of publishing and mailing *Pacific Discovery,* the monthly *Newsletter,* and other members' notices made necessary the adoption of a new membership fee schedule to become effective July 1, 1981.

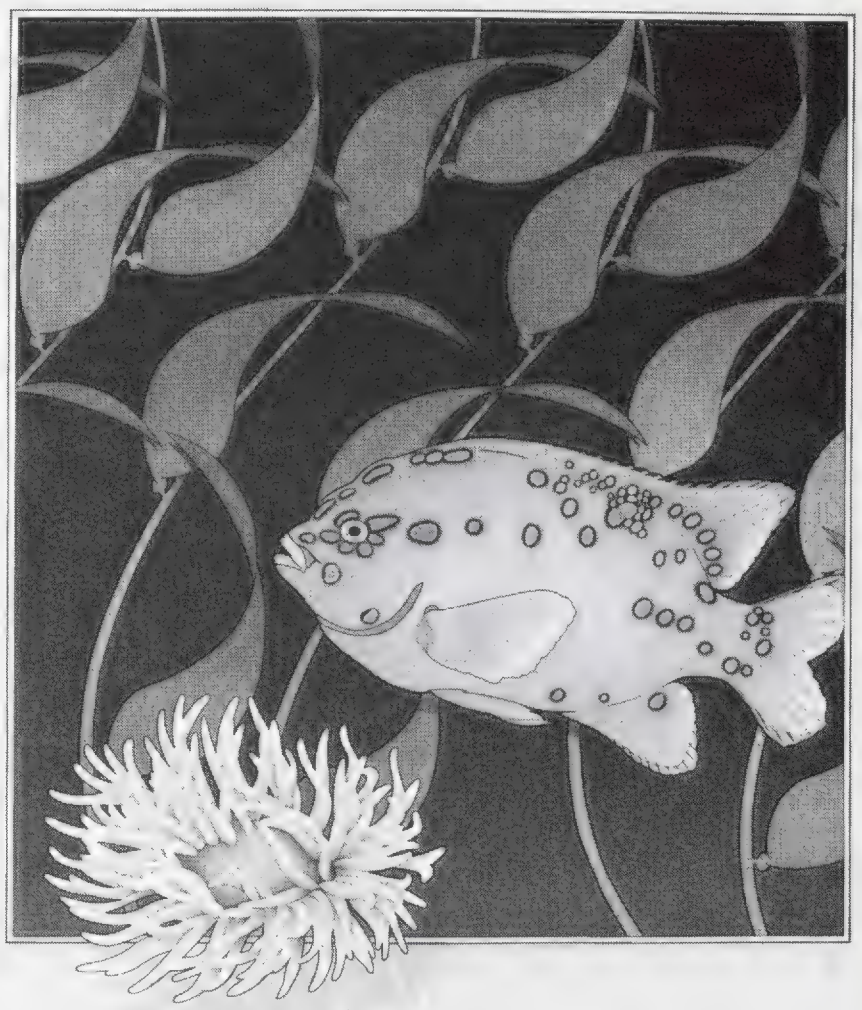
VOLUNTEERS

Patricia Dal Porto, Associate Coordinator. Volunteers serve in all departments, and are a most important resource without which the Academy could not function. The Volunteer Office was transferred from the Development Office to the Education Department, and Mrs. Dal Porto, who is also a docent volunteer, agreed to coordinate the recruitment and placing of volunteers. The docents are the largest group of organized volunteers, and with those who serve in the Discovery Room, are assisted by Diane Butler. Tidepool Volunteers donated more than 4,400 hours supervising that facility. There are twenty-five Information Desk Volunteers, supervised by volunteer Betsy Arminger, who greeted the visiting public, answered questions, gave directions and, at the same time, recruited hundreds of new Academy members.

Volunteers as reported by the various departments are listed on pages 26 and 27. The Academy is indebted to each one of them. Volunteers are very important people.

PACIFIC DISCOVERY

Bruce Finson, Editor, and Johan Kooy, Art Director. A black-and-white magazine in a world of color, the Academy's bimonthly nature journal presents one of the most extensive photo coverages among the nature magazines. In the twenty-two natural history articles published during the year there were more than 340 photographs of plants, animals, and other natural history subjects.



Above, Steve Craig, Operations Manager, making audio-visual tapes for the Deep Frontier show. Right, Aquarium poster by Dan Gilbert, available at the Nature Company bookstore at the Academy.

Associate Editors Robert I. Bowman, John E. McCosker, and Robert T. Orr, and Managing Editor George Lindsay participate in the solicitation and selection of articles to be published.

PICTURE COLLECTION

Johan Kooy, Chairman. Hundreds of thousands of visual images relating to natural history, anthropology, astronomy, Academy expeditions, and related subjects have been accumulated in the Picture Collection. The importance of volunteer assistance is demonstrated in this department, which is completely staffed by volunteers who give their time and special skills to process the accessions and loans.

OPERATIONS

Steven B. Craig, Operations Manager. The Academy has eight acres of floor space and many systems and much unusual equipment which must be maintained. Mr. Craig is in charge of the physical plant, instrument shop, wood shop, print shop, security, custodial, and other services. These units provide service to all Academy areas and departments in addition to Pepperwood Ranch Natural Preserve and the Commercial Building.

INSTRUMENT SHOP. Frank DeOme, Technical Supervisor. In addition to instrument and equipment repair the Instrument Shop personnel designed and assembled audio-visual systems for exhibits, installed new lighting in several halls and galleries, and were involved with exhibit development. The Print Shop processed more than one-half million sheets of paper, including maps, programs, and booklets.

WOOD SHOP. Eric Johnsen, Supervisor. Display fixtures and facilities were constructed for the Exhibits Department, a photographic laboratory and darkroom were remodeled, and outside contractors were assisted with other renovations throughout the Academy.

ENGINEERING. Herb Thein, Chief Engineer. Engineers must maintain a 24-hour watch in the aquarium, with its complicated water circulation and treatment systems, and perform maintenance duties in all areas of the Academy.

SECURITY. Levelle Alderson, Guard Supervisor. Mr. Alderson and the security personnel saw to the safety of Academy visitors and property. This involved protection of particularly vulnerable special exhibits, such as "Gold of El Dorado," which was guarded twenty-four hours each day. California Highway Patrol, San Mateo Sheriff, and San Francisco Police Department escorts between the Airport and the Academy, and special security during unpacking and installation were required.

CUSTODIAL. Nathan Cole, Senior Custodian. Janitorial services are contracted for, and only a small staff is on duty during the open hours. Norris Coleman, Sr., retired toward the end of the fiscal year, and Nathan Cole, a former employee under Civil Service, returned to supervise the custodial maintenance performed by the contractors as well as the institution's employees.

George E. Lindsay
Director

STAFF

(as of June 30, 1981)

George E. Lindsay, *Executive Director*

John E. McCosker, *Director of Public Programs*

Lee W. Simon, *Director of Morrison Planetarium*

Robert C. Miller, *Director Emeritus*

William N. Eschmeyer, *Director of Research*

Nancy B. Dykes, *Business Manager*

Robert T. Orr, *Senior Scientist*

Ruth Connelly, *Secretary to the Executive Director*

AQUATIC BIOLOGY
(STEINHART AQUARIUM)
- John E. McCosker, *Director*
- Tom Tucker, *Curator*
- Robert P. Dempster, *Curator Emeritus*
- William F. Rohrs, *Senior Aquarist*
- Alfred D. Castro, *Aquarist*
- F. Edward Ely, *Herpetologist*
- Francis Glennon, *Aquarist*
- Lloyd F. Gomez, *Aquatic Biologist*
- Yaye Herman, *Microbiologist*
- Richard Lacer, *Amphibiologist*
- Edward E. Miller, *Aquatic Biologist*
- W. Walter Schneebeli, *Collector*
- Pat Morales, *Pathologist*
- Nicolas van Krijdt, *Painter/Preparator*
- James Derzon, *Preparator/Painter*
- Christina Slager, *Secretary*
- Birgit Winning, *Secretary/Biologist*
- Stewart Madin, *Veterinary Associate*
- Wilson Clark, *Research Associate*
- Melvin Donaldson, *Research Associate*
- Al Giddings, *Research Associate*
- Michael D. Lagios, *Research Associate*
- Leighton R. Taylor, Jr., *Research Associate*
- Charles Wright, *Field Associate*
- Lynn G. Dunne, *Associate*
- Lester C. Gunther, Jr., *Associate*
- Edwin Janss, Jr., *Associate*
- Jeffery W. Meyer, *Associate*

ANTHROPOLOGY
- Dorothy K. Washburn, *Associate Curator and Chairman*
- Joan Bacharach, *Collections Manager*
- Barbara Barton, *Curatorial Assistant and Secretary*
- Christopher Thomas, *Curatorial Assistant*
- John Adair, *Research Associate*
- Donald Haggerty, *Research Associate*
- Sandra McCosker, *Research Associate*
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Aq Aquarium
Bo Botany
De Development
Do Docent
DR Discovery Room
En Entomology
ET Education/Travel
Ex Exhibits
Ge Geology
He Herpetology
Ic Ichthyology
ID Information Desk
IS Instrument Shop
IZ Invertebrate Zoology
Li Library
OM Ornithology and Mammalogy
PC Picture Collection
PI Planetarium
SP Scientific Publications
SI Student Intern

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The Academy also extends its appreciation to the thousands of individuals whose contributions through gifts, bequests, volunteer service, membership participation and dues have advanced its work.

CALIFORNIA ACADEMY OF SCIENCES

STATEMENT OF CURRENT FUNDS — GENERAL OPERATING REVENUES, EXPENSES, TRANSFERS AND FUND BALANCE

Year ended June 30, 1981 with comparative figures for 1980

	1981	1980
Revenues:		
Support from the public:		
Corporate contributions	$ 57,462	61,205
Individuals, trusts and private foundations	135,999	85,919
Membership dues	225,654	209,878
Total support from the public	419,115	357,002
Operating income:		
City and County of San Francisco support of operations (note 8)	946,601	922,116
Fees and grants from others	108,804	45,435
Planetarium (including Light Show income of $122,338 in 1981 and $111,103 in 1980)	295,001	283,534
Admissions	825,800	813,554
Sales desk royalty	91,480	49,510
Restaurant royalty	97,719	92,113
Other	121,146	67,096
Total operating income	2,486,551	2,273,358
Investment income:		
Net rent from commercial building	377,296	238,817
Interest and dividends	241,428	156,368
Total investment income	618,724	395,185
Total revenues	3,524,390	3,025,545
Budgeted transfers from other funds	475,000	435,240
Total revenues and transfers	3,999,390	3,460,785
Expenses:		
Aquarium and museum	1,452,324	1,523,214
Departmental research and curatorial activity	814,108	753,971
Planetarium	162,376	155,397
Light Show	36,576	35,869
General and administrative	1,462,227	1,042,672
Employees' pension annuity (note 6)	71,467	61,462
Total expenses	3,999,078	3,572,585
Excess of revenues and budgeted transfers over expenses (deficit)	312	(111,800)
Fund deficit at beginning of year	(139,654)	(27,854)
Transfer to retire prior year's deficit per Board action	139,654	—
Fund surplus (deficit) at end of year	$ 312	(139,654)

See accompanying notes to financial statements.

ACCOUNTANTS' REPORT

The Board of Trustees
California Academy of Sciences:

We have examined the balance sheets of the funds of the California Academy of Sciences as of June 30, 1981 and the related statement of current funds—general operating revenues, expenses, transfers and fund balance and statement of changes in fund balances for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

Under generally accepted accounting principles, expenditures for furniture, fixtures and equipment should be capitalized. The California Academy of Sciences charges such purchases to current expenses, the effect of which is more fully described in note 9.

In our opinion, except for the effect on the financial statements of the failure to capitalize expenditures for furniture, fixtures and equipment as noted in the preceding paragraph, the aforementioned financial statements present fairly the financial position of the California Academy of Sciences at June 30, 1981 and the results of its operations and changes in fund balances for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Peat, Marwick, Mitchell & Co.

San Francisco, California
August 28, 1981

CALIFORNIA ACADEMY OF SCIENCES

STATEMENT OF CHANGES IN FUND BALANCES
YEAR ENDED JUNE 30, 1981

	Current funds				
	General operating	Restricted to research	Special purpose funds	Endowment fund	Building fund
Balance (deficit) at beginning of year	$ (139,654)	379,426	9,113,806	2,915,242	(113,166)
Additions:					
Operating income	2,486,551	—	—	—	—
Contributions, grants and appropriations for endowments and special purposes	419,115	672,511	1,527,411	349,473	—
NEA Challenge Grant (note 11)	—	—	—	400,000	—
Investment income	618,724	—	672,243	—	—
Light show receipts	—	—	12,000	—	—
Gain on sale of securities	—	—	696,032	28,810	—
Other	—	32,075	243,883	87,851	—
Total additions	3,524,390	704,586	3,151,569	866,134	—
Deductions:					
Operating expenses	3,960,793	—	—	—	—
To finance expenditures of research grants	—	412,905	—	—	—
Indirect costs charged to research grants	—	81,791	—	—	—
Amounts expended for furniture, fixtures and equipment (note 9)	20,072	56,414	132,368	—	—
Amounts expended for construction (note 9)	—	—	607,369	—	—
Amounts expended for professional services	18,213	44,941	12,409	—	—
Other	—	1,325	456,792	2,972	—
Total deductions	3,999,078	597,376	1,208,938	2,972	—
Transfer to retire prior year's deficits per Board action	139,654	—	(252,820)	—	113,166
Budgeted transfers between funds	475,000	—	(475,000)	—	—
Balance at end of year	$ 312	486,636	10,328,617	3,778,404	—

See accompanying notes to financial statements.

CALIFORNIA ACADEMY OF SCIENCES

BALANCE SHEETS — JUNE 30, 1981

ASSETS	Current funds				
	General operating	Restricted to research	Special purpose funds	Endowment fund	Building fund
Cash:					
Commercial accounts	$ —	—	94,225	15,553	—
Savings accounts	—	—	168,361	1,424	—
	—	—	262,586	16,977	—
Receivables:					
Research grants (note 2)	—	506,638	—	—	—
Accrued interest and dividends receivable	36,550	—	69,743	—	—
Other	24,344	6,050	—	410	—
	60,894	512,688	69,743	410	—
Prepaid expenses	70,466	—	—	—	—
Investments (note 3):					
Commercial property, including a fully depreciated building	—	—	—	608,084	—
Marketable securities	—	—	8,885,620	3,333,507	—
Real property (note 10)	—	—	895,960	—	—
Due from other funds	—	—	227,044	—	—
Total assets	$131,360	512,688	10,340,953	3,958,978	—
LIABILITIES AND FUND BALANCES					
Liabilities:					
Bank overdraft	2,363	4,364	—	—	—
Accounts payable	37,933	15,205	11,034	—	—
Accrued expenses	7,236	—	—	—	—
Other liabilities	43,529	—	1,302	—	—
Due to other funds	39,987	6,483	—	180,574	—
	131,048	26,052	12,336	180,574	—
Fund balances:					
Current unrestricted, available for general operations	312	—	—	—	—
Current restricted, designated by donors for:					
Research grants	—	486,636	—	—	—
Special purposes	—	—	10,328,617	—	—
Endowment fund, under board discretion	—	—	—	3,778,404	—
Building fund	—	—	—	—	—
Fund balances	312	486,636	10,328,617	3,778,404	—
Total liabilities and fund balances	$131,360	512,688	10,340,953	3,958,978	—

See accompanying notes to financial statements.

NOTES TO FINANCIAL STATEMENTS

JUNE 30, 1981

1. *Summary of Significant Accounting Policies*

The Academy uses the accrual method of accounting with revenue recorded when earned and expenses recorded when incurred. Government grants are recognized in full when awarded.

Gifts of specimens and collections are not included in the financial statements.

Donated materials and services are not recorded.

The Academy has the following funds:

a. Current General Operating Fund—This fund accounts for resources used in carrying on the routine operations of the Academy in accordance with the limitations of its charter and bylaws. The Board of Trustees exercises discretionary control over this fund.

b. Restricted Funds:

1. The current "restricted to research" fund accounts for gifts and grants restricted to research projects. Certain of the general operating fund expenditures are also for research.

2. The special purpose funds account for resources contributed to the Academy for specific purposes other than research projects. The resources are currently available for use, but expendable only for the purposes specified by the donors. Funds donated for plant improvements, the Irvine curatorial chair for anthropology, and the Decker and Martha McAllister curatorial chair for botany are included in the special purpose fund category in the financial statements. Portions of the funds contributed for the use of various aquarium and museum departments may be designated by the Board of Trustees to general operations to the extent such expenditures are within the purposes specified by donors.

3. The building fund is for resources contributed specifically for the purpose of construction projects. The Academy had no building projects during the current year.

c. The endowment fund is comprised of unrestricted gifts and bequests. Unrestricted gifts in excess of $10,000 and life memberships in the amount of $500 are credited to this fund. This year, in addition, gifts from a one-time membership drive to meet the NEA Challenge Grant goal were added to the fund (see note 11). The principal amount of the gifts and bequests is not maintained intact in perpetuity. Transfers from the endowment fund and dispositions of its principal are made at the discretion of the Board of Trustees. The endowment investment income is credited, as earned, to the current general operating fund.

2. *Research Grants Receivable*

Grants receivable represent amounts pledged to the Academy for certain operations and for the completion of designated projects in future years. The grants are collected when expenditures are made for the designated project. A summary of grants receivable follows:

National Endowment for the Arts	$ 30,000
National Science Foundation	384,984
Federal Emergency Management Agency .	51,210
Other	40,444
	$506,638

3. *Investments*

Investments are recorded at cost, or if acquired by gift, at their fair market value at the date of acquisition. A summary of the current market value of the marketable securities for each fund follows:

	Book value	Market value
Special purpose fund ...	$8,885,620	$9,250,398
Endowment fund	$3,333,507	$3,444,427

The Academy owns an eleven story, fully depreciated commercial building located in the City of San Francisco. The value as recorded on the balance sheet of the endowment fund represents the cost of the land.

4. *Buildings*

The buildings acquired by the California Academy of Sciences in Golden Gate Park are not reflected in the accompanying balance sheet since under the terms of the Charter of the City and County of San Francisco, no one other than the City may hold title to buildings on City property. As the Academy facilities in Golden Gate Park are acquired, title is transferred to the City and County of San Francisco. The buildings were valued at $22,800,000 by insurance appraisal in 1981.

5. *Collections, Library and Equipment*

Collections, library and equipment are expensed in the year of acquisition and, as such, are not reflected in the accompanying balance sheet. The Academy staff has estimated the replacement cost of collections, library, and equipment to be in excess of $20,000,000.

6. *Employees' Pension Annuity*

On January 1, 1964, the Academy adopted a pension plan utilizing individual annuity contracts for all regular full-time staff members under the age of 59 as of that date. On January 1, 1976, this plan was amended to comply with the Employee Retirement Income and Security Act of 1974.

Under the provisions of the plan, the Academy and the employees each fund one-half of the pension cost. The Academy's contributions are based on 5% of the amount of salary subject to Social Security tax and 7½% of the amount of salary above the Social Security tax base. Total pension expense for the year was $71,467.

7. *Trusts*

The Academy is the ultimate beneficiary under an irrevocable living trust in the amount of $170,076 (market value $197,377). The income of the trust is paid to the grantors and the Academy bears the cost of all trust operations. The assets of the trust are not shown in the accompanying financial statements.

The Academy is the trustee and beneficiary under four irrevocable unitrust agreements which, together, had a market value at June 30, 1981 of $1,705,644. The Academy is a fifty percent beneficiary under two of the agreements and is the sole beneficiary under the remaining two agreements. Each grantor receives an annual amount equal to a stated percentage of the net fair market value of the assets of the respective unitrust, except for one grantor who receives a stated percentage of the net fair market value of the assets or current income, whichever is less. The percentages range from five to eight percent. These trusts absorb the costs of their operations. The assets of the trusts are not shown in the accompanying financial statements. Distributions under the unitrust agreements, for the fiscal year ended June 30, 1981 totaled $90,919. One of these four unitrusts was established during the current year by Axel G. Swanberg and under the terms of the agreement the Academy is sole beneficiary.

8. *Support from the City and County of San Francisco*

Section 6.404d of the Charter of the City and County of San Francisco states that the City shall provide funds necessary for the maintenance of the Steinhart Aquarium and funds deemed proper for the maintenance of the Academy buildings. During the fiscal year ended June 30, 1981, the Academy received $946,601 from the City and County of San Francisco for this support.

9. *Furniture, Fixtures and Equipment*

The Academy departs from generally accepted accounting principles in that it expenses such assets as acquired instead of capitalizing them and amortizing the costs over the useful lives thereof. During the year, the Academy acquired furniture, fixtures and equipment costing $208,854. The Academy also expended $607,369 for commercial building remodeling which has not been capitalized (note 3).

10. *Real Property*

The Academy holds title to 3,117 acres of ranchland in Sonoma County known as Pepperwood Ranch. The Academy, under terms of the grant deed of title, must preserve the property in its current natural state and can utilize the property for research and educational activities for a period of at least 10 years. Assessed value of the property on the date of the gift was $808,460.

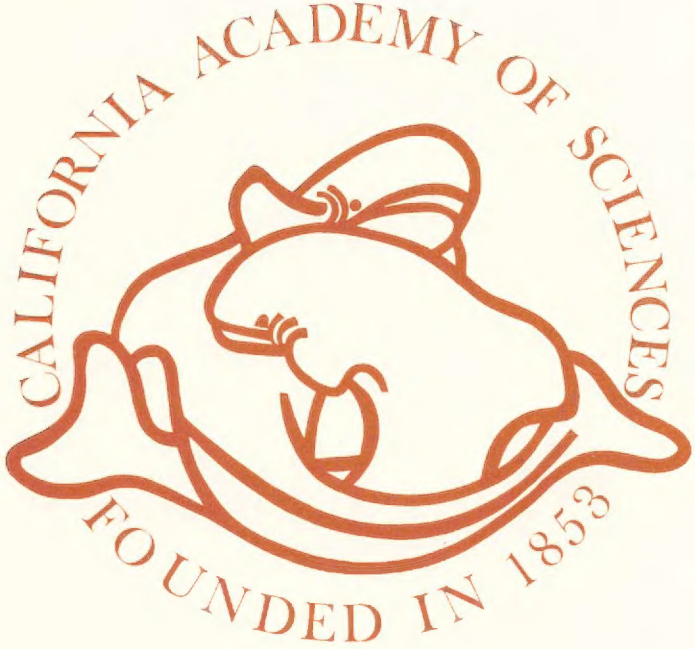
During the current year the Academy received as a bequest from Donald Patterson, deceased, a fifty percent interest in a four-unit commercial building located in San Leandro, California. The other half interest is owned by the Society of California Pioneers. Appraised value of the Academy's half of the property on the date of the gift was $87,500.

11. *National Endowment for the Arts Challenge Grant*

In December 1978 the Academy was granted a $400,000 Challenge Grant by the National Endowment for the Arts (NEA). Under the terms of the grant, the Academy must raise $1,200,000 from both new sources and increased support from existing sources by June 1982. As of June 30, 1981, the Academy had certified $885,721 of this amount to the NEA, and must raise an additional $314,279 during the next fiscal year to complete the grant goal. Upon certification by the Academy to the NEA that the first $400,000 goal of the Challenge Grant had been reached before August 30, 1980, the NEA released their $400,000 to the Academy in December 1980 and the full amount was recorded in the current year.

12. *Income Taxes*

The Academy is qualified as a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code and is not a private foundation. The Academy is also tax-exempt under the laws of the State of California.



California Academy of Sciences

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Annual report staff: Editor, Bruce Finson; Art Director, Johan Kooy; Photography, Lloyd Ullberg and Susan Middleton.

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